

CLAIMS

1. A vertical unipolar component formed in a semiconductor substrate, said component comprising junctions formed at the surface of parts of said substrate separated with insulated trenches extending in an upper portion of the substrate, in which the  
5 insulated trenches are filled with a vertical multiple-layer of at least two conductive elements separated by an insulating layer, the multiple-layer depth being, at most, equal to the thickness of said upper portion.
2. The component of claim 1, wherein the multiple-layer depth is equal to the  
10 thickness of the upper portion, the insulating layer also separating the elements of a substrate portion underlying the upper portion.
3. The component of claim 1, wherein at least part of the elements are conductive grains.  
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4. The component of claim 1, wherein at least part of the elements are blocks exhibiting, in top view, a same surface area as the multiple-layer.
5. The component of claim 1, forming a Schottky diode having its cathode  
20 corresponding to said upper portion.
6. A method for manufacturing a vertical unipolar component in a semiconductor substrate, comprising:
  - a) digging at least one vertical trench into an upper portion of the substrate;
  - 25 b) coating the lateral walls and the bottom of the trench with an insulating layer;
  - c) depositing and etching a first conductive layer to partially fill the trench;
  - d) coating the remaining portion of the first conductive layer with an insulating  
layer; and
  - e) depositing and etching a second conductive layer to fill the trench.  
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7. The method of claim 6, wherein the sequence of steps c) and d) is repeated.